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Draft report

IX. Near-Earth objects

1. In accordance with General Assembly resolution 70/82, the Scientific and Technical Subcommittee considered agenda item 12, "Near-Earth objects".

2. The representatives of China, Egypt, Germany, Indonesia, Japan, Mexico, Pakistan, the Republic of Korea, the Russian Federation and the United States, as well as the representative of Chile, on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 12. In addition, statements were made by the observers for ASE, IAWN and SMPAG. During the general exchange of views, statements relating to the item were made by representatives of other member States.

3. The Subcommittee heard the following scientific and technical presentations:

(a) "IAWN report to the Scientific and Technical Subcommittee, 2016", by the observer for IAWN;

(b) "SMPAG report to the Scientific and Technical Subcommittee, 2016", by the observer for SMPAG.

4. The Subcommittee had before it a conference room paper entitled "Proposal for a proclamation of the International Asteroid Day: proposal submitted by the Association of Space Explorers" (A/AC.105/C.1/2016/CRP.11).

5. The Subcommittee noted with appreciation the strengthening of cooperation and coordination efforts at the global level for sharing information on discovering, monitoring and physically characterizing potentially hazardous near-Earth objects (NEOs) to ensure that all States, in particular developing countries with limited capacity in predicting and mitigating an NEO impact, were aware of potential threats.

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6. The Subcommittee heard presentations on cooperative projects and observation missions being undertaken, such as the JAXA sample return mission Hayabusa-2, scheduled to arrive at the target asteroid in 2018 and the sample return mission (Origins Spectral Interpretation Resource Identification Security Regolith Explorer) OSIRIS-Rex of the National Aeronautics and Space Administration (NASA) of the United States, to be launched in 2016. Furthermore, a number of international research projects were planned to explore asteroid mitigation technology options, such as the NEOShield-2 project, coordinated by Airbus Defense and Space and the joint ESA-NASA Asteroid Impact and Deflection Assessment (AIDA) mission, planned to have launch capability in 2019.

7. The Subcommittee took note of cooperation projects to enhance capabilities for the observation of NEOs, such as the establishment of the Asia-Pacific Asteroid Observation Network comprising 21 organizations in the Asia-Pacific region, the initiative for the establishment of a new regional centre in Asia for the international network providing risk assessments and the Deep Ecliptic Patrol of the Southern Sky (DEEP-South) project of the Korea Astronomy and Space Science Institute of the Republic of Korea.

8. The Subcommittee recalled the agreement that IAWN and SMPAG, established in 2014 as a result of the recommendations for an international response to the near-Earth object impact threat, which were endorsed by the Committee on the Peaceful Uses of Outer Space at its fifty-sixth session and welcomed by the General Assembly in its resolution 68/75, should provide annual reports, and agreed to invite IAWN and SMPAG to participate as observers in the sessions of the Subcommittee.

9. The Subcommittee heard reports by the chairs of IAWN and SMPAG on their activities and welcomed with appreciation the progress made by those two groups in the area of strengthening international cooperation in mitigating a potential NEO threat, which required cooperative action in the interest of public safety on the part of the global community.

10. The Subcommittee noted the progress by IAWN as an international association of institutions involved in detecting, tracking, and characterizing NEOs to provide the best information available on the NEO hazard and all impact threats, including its task of using well-defined communication plans and protocols to assist Governments in the analysis of the consequences of asteroid impact and to support the planning of mitigation responses. The Subcommittee noted that IAWN aimed to serve the global community as the authoritative source of accurate and up-to-date information on NEOs and NEO impact risks.

11. The Subcommittee noted that IAWN currently comprised six official signatories to the IAWN statement of intent, representing space institutions from Europe, Mexico, the Republic of Korea, the Russian Federation and the United States and an amateur observer from the United Kingdom. These signatories bring to bear a variety of ground- and space-based assets to detect and observe NEOs, as well as abilities in orbit computation, possible impact prediction and modelling of potential impact effects, and recognize the importance of being adequately prepared for communications with a variety of audiences about NEOs, close approaches and NEO impact risks.

12. The Subcommittee also noted that SMPAG held two meetings since the fifty-second session of the Subcommittee: the first one on the margins of the fourth

international Planetary Defense Conference held in Frascati, Italy, on 9 and 10 April 2015 and the second on the margins of the present session of the Subcommittee, on 16 and 17 February 2016.

13. The Subcommittee further noted that the first workplan document had been approved at the SMPAG steering committee meeting on the margins of the Division for Planetary Sciences on 10 November 2015. The workplan is a living document including completed, ongoing and planned activities and at present comprises 11 workplan items, for which eight task leaders had already been identified to coordinate the activities and three task leaders were still to be assigned.

14. The Subcommittee further noted that during the SMPAG meeting on the margins of this Subcommittee's session, the following had been achieved:

(a) The Korea Astronomy and Space Science Institute had been unanimously accepted as a new SMPAG member, bringing SMPAG membership to 16 official members;

(b) SMPAG unanimously endorsed a statement on the need for a NEO deflection demonstration mission;

(c) Status reports were given on all ongoing workplan items. In addition, splinter meetings were held on the subjects of mapping threat scenarios to mission types and criteria and thresholds for impact response actions;

(d) The Romanian Space Agency had offered to take the lead on the workplan item on criteria for deflection targeting, and SMPAG welcomed the offer and agreed on that assignment;

(e) An ad hoc working group on legal issues was discussed and it was agreed to establish it in order to, among other things, formulate and prioritize relevant legal issues and questions requiring clarification with regard to the work of SMPAG; consider the legal questions in the context of existing treaties; and devise a plan of action to tackle outstanding issues;

(f) ESA had been unanimously re-elected as the chair of SMPAG for the next two years in order to ensure the completion of the initial development phase of SMPAG.

15. The Subcommittee noted the need to establish a permanent secretariat of SMPAG in order to ensure the continuity of its work independent of the SMPAG rotating chairmanship and provide for institutional memory in terms of keeping documentation records and ensuring consistent annual reporting to the Committee on the Peaceful Uses of Outer Space.

16. In that regard the Subcommittee, recalling its earlier agreement that the work of IAWN and SMPAG should be facilitated by the United Nations, noted that SMPAG requested the Office for Outer Space Affairs to serve as the permanent secretariat of SMPAG on the understanding that there would be no implications to the budget of the United Nations.

17. The Subcommittee also noted that the work of IAWN and SMPAG, facilitated by the Office for Outer Space Affairs, was also linked in important ways to the process related to the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space in 2018 (UNISPACE+50), which

aimed to reinforce some of the existing global coordination mechanisms working towards strengthening resiliency and the overall governance of space activities.

18. The Subcommittee also noted that the next meetings of the IAWN steering committee and the SMPAG steering committee would take place on the margins of the meeting of the Division for Planetary Sciences to be held from 16 to 21 October 2016, in Pasadena, United States.

19. The Subcommittee welcomed the proposal by ASE for a global observance of an International Asteroid Day, to be proclaimed by the General Assembly at its seventy-first session in 2016. Intended as an annual event held for the general public on the anniversary of the Tunguska impact over Siberia on 30 June 1908, the International Asteroid Day is intended to raise public awareness about the asteroid impact hazard and inform the public about the crisis communication actions to be taken at the global level in the case of a credible NEO threat; the work undertaken by SMPAG and IAWN, facilitated by the Office for Outer Space Affairs; and the work undertaken in that area by the Committee on the Peaceful Uses of Outer Space and its member States.

20. The Subcommittee noted with appreciation that IAWN and SMPAG organized an open forum lunchtime event on 18 February to present the status of their activities and engage in an open dialogue with member States, other Vienna-based organizations and the media. The open forum took the form of presentations given by IAWN and SMPAG representatives. Participants were given a leaflet with further information on IAWN and SMPAG, which served as a reference document for further information for Governments, the general public and the media, and would be translated into the six official languages of the United Nations and made available on the web page of the Office for Outer Space Affairs (www.unoosa.org). Further information on IAWN and SMPAG is available at http://iawn.net and http://smpag.net, respectively.

XIII. Use of nuclear power sources in outer space

21. In accordance with General Assembly resolution 70/82, the Subcommittee considered agenda item 13, "Use of nuclear power sources in outer space".

22. The representatives of Indonesia, France, the United States and Venezuela (Bolivarian Republic of) and the representative of Chile, on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 13. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

23. The Subcommittee had before it the following:

(a) Draft report prepared by the Working Group on the Use of Nuclear Power Sources in Outer Space containing recommendations for potential future work to promote and facilitate implementation of the Safety Framework for Nuclear Power Source Applications in Outer Space (A/AC.105/C.1/L.349);

(b) Draft report on the implementation of the Safety Framework for Nuclear Power Source Applications in Outer Space and general recommendations for

potential future work, prepared by the Working Group on the Use of Nuclear Power Sources in Outer Space (A/AC.105/C.1/L.349/Rev.1);

(c) A conference room paper submitted by the United Kingdom entitled "Possible general safety recommendations to implement the Safety Framework for Nuclear Power Source Applications in Outer Space" (A/AC.105/C.1/2016/CRP.6);

(d) A conference room paper submitted by France entitled "Proposal to revise the Principles Relevant to the Use of Nuclear Power Sources in Outer Space adopted by the General Assembly in its resolution 47/68 of 14 December 1992" (A/AC.105/C.1/2016/CRP.7);

(e) A conference room paper submitted by China entitled "Safety practices of space nuclear power sources in China" (A/AC.105/C.1/2016/CRP.12).

24. The Subcommittee encouraged States and international intergovernmental organizations to begin or to continue implementing the Safety Framework for Nuclear Power Source Applications in Outer Space, as contained in document A/AC.105/934.

25. The Subcommittee also encouraged States and intergovernmental organizations involved in the use of nuclear power sources (NPS) in outer space to continue to share, in technical presentations to the Subcommittee, their NPS safety experiences and best practices.

26. Some delegations expressed the view that presentations and statements under this agenda item from member States and international intergovernmental organizations on their best practices in the use of space NPS helped to strengthen the commitments of the international community to safety of space NPS.

27. Some delegations expressed the view that the Safety Framework, in its present form, was not sufficient to meet the challenges posed by the use of NPS in outer space and that their proliferation in outer space, including in terrestrial orbits, should not be allowed, as the effects of NPS on humankind and the environment had not been assessed and there was no definite framework establishing responsibilities and introducing technical and legal tools that could effectively address critical situations that might arise because of improper practices.

28. The view was expressed that the Safety Framework would facilitate the conduct of missions involving NPS on a bilateral or multilateral basis by States and international intergovernmental organizations. The delegation expressing that view was also of the view that the widespread adoption of the Framework would provide assurance to the global community that space NPS applications were being developed, launched, and used in a safe manner, and in that connection, encouraging national implementation of the Safety Framework should remain a high priority of the Subcommittee.

29. The view was expressed that the Safety Framework continuously provided a comprehensive and sufficient foundation of guidance for Member States and international intergovernmental space organizations to develop and operate their own space NPS applications in a safe manner.

30. Some delegations expressed the view that the use of NPS in outer space should be as limited as possible and that, while they were needed for some interplanetary missions, no justification existed for their use in terrestrial orbits, for which other

sources of energy that were much safer and that had been proved to be efficient were available.

31. Some delegations expressed the view that more consideration should be given to the use of NPS in terrestrial orbits in order to address the problem of potential collisions of NPS objects and to the accidental re-entry of NPS into the Earth's atmosphere. Those delegations were of the view that more attention should be given to that matter through adequate strategies, long-term planning, regulations and the promotion of binding standards, as well as the Safety Framework for Nuclear Power Source Applications in Outer Space.

32. Some delegations were of the view that serious consideration should be given to the protection of the Earth's biosphere from potential risks associated with the relevant launch, operation and decommissioning of the applications of NPS.

33. The view was expressed that the Sun was a source of energy that could effectively serve present and future needs of humankind in the areas of satellite applications, such as Earth observation, science and telecommunications, including telehealth and tele-education.

34. The view was expressed that the proposal to revise the Principles, as contained in conference room paper A/AC.105/C.1/2016/CRP.7, was merited for the following reasons: (a) the scope of the Principles had become too restrictive and was no longer suited to current and future technological developments; (b) the Principle's reference framework for radiological protection had evolved; and (c) the revision of the Principles would make it possible to ensure greater consistency with the Safety Framework. The delegation expressing that view was also of the view that the Subcommittee's Working Group on the Use of Nuclear Power Sources in Outer Space could consider, at least in an exploratory way, the opportunity to reconsider the Principles, taking into account the arguments outlined above.

35. Some delegations expressed the view that there should be greater coordination and interaction between the Scientific and Technical Subcommittee and the Legal Subcommittee in order to develop binding legal instruments to define the responsibility of States in the use of NPS in outer space and to undertake research on ways and means of optimizing or substituting for the use of nuclear energy in outer space activities.

36. Some delegations expressed the view that the objectives of the Working Group's multi-year workplan should be in conformity with international law, the Charter of the United Nations and the United Nations treaties and principles on outer space, in particular the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

37. Pursuant to General Assembly resolution 70/82, the Subcommittee, at its 835th meeting, on 15 February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Sam A. Harbison (United Kingdom).

38. The Working Group held [...] meetings. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group, which is contained in annex II to the present report.

XIV. Long-term sustainability of outer space activities

39. In accordance with General Assembly resolution 70/82, the Subcommittee considered agenda item 14, "Long-term sustainability of outer space activities", under the workplan contained in the report of the Committee on the Peaceful Uses of Outer Space at its fifty-second session and as extended by the Committee at its fifty-seventh session.

40. The representatives of Austria, Brazil, Canada, China, Cuba, Egypt, France, Germany, India, Japan, the Russian Federation, South Africa, Switzerland, the United Kingdom and the United States, as well as the representative of Chile on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 14. During the general exchange of views, statements relating to the item were made by representatives of other member States.

41. The Subcommittee heard the following scientific and technical presentations:

(a) "The most recent Hungarian cosmic radiation measurement results in the stratosphere using stratospheric balloons and sounding rockets", by the representative of Hungary;

(b) "Space debris mitigation activities at ESA in 2015", by the representative of the European Space Agency;

(c) "International space governance", by the observer for IAASS.

42. The Subcommittee had before it the following:

(a) Working paper by the Chair of the Working Group on the Long-term Sustainability of Outer Space Activities containing a draft report of the Working Group on the Long-term Sustainability of Outer Space Activities (A/AC.105/C.1/L.343);

(b) Working paper submitted by the Russian Federation entitled "Time for the international community to decide whether it would support an effective set of solutions regarding the enhancement of the safety of space operations or wind up its work on this topic with inconclusive results devoid of any functional load and having marginal practical usefulness" (A/AC.105/C.1/L.345);

(c) Working paper submitted by the Russian Federation entitled "Russian assessment of the initiative and actions of the European Union to advance its draft code of conduct for outer space activities" (A/AC.105/C.1/L.346);

(d) Working paper submitted by the United States containing a proposal for an expert group on space objects and events (A/AC.105/C.1/L.347);

(e) Note by the Secretariat containing an updated set of draft guidelines for the long-term sustainability of outer space activities (A/AC.105/C.1/L.348);

(f) Conference room paper by the Chair of the Working Group on the Long-term Sustainability of Outer Space Activities containing ideas for the way forward on the draft set of guidelines for the long-term sustainability of outer space activities (A/AC.105/C.1/2016/CRP.3);

(g) Working paper submitted by China entitled "China's position paper on the issues of long term sustainability of outer space activities" (A/AC.105/C.1/2016/CRP.13);

(h) Working paper submitted by the Russian Federation entitled "Considerations on the sum total of prime requisites and factors that should shape the policy of international information-sharing serving safety of space operations" (A/AC.105/C.1/2016/CRP.14);

(i) Working paper submitted by the Russian Federation entitled "Reviewing opportunities for achieving the Vienna Consensus on Space Security encompassing several regulatory domains" (A/AC.105/C.1/2016/CRP.15).

43. In accordance with General Assembly resolution 70/82, the Working Group on the Long-term Sustainability of Outer Space Activities was reconvened under the chairmanship of Peter Martinez (South Africa).

44. The Subcommittee welcomed the progress made by the Working Group since its last session, in accordance with the terms of reference and methods of work of the Working Group. The Subcommittee also noted that an intersessional meeting of the Working Group was held in Vienna from 5 to 9 October 2015.

45. Some delegations stressed the importance of accomplishing the work of the Working Group within the time frame outlined in the revised workplan. Those delegations also expressed the view that the work of the Working Group and its Chair had been conducted in an open, fair, transparent and inclusive manner.

46. Some delegations expressed the view that it was important to continue to consider interrelationships between the work of the Working Group and the recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities (A/68/189).

47. The view was expressed that transparency and confidence-building measures in outer space activities were critical for maintaining the long-term sustainability of the peaceful uses of outer space, particularly regarding recommendations for information exchange, notifications on registration of space objects and capacity-building.

48. The view was expressed that the guidelines on the long-term sustainability of outer space activities would form part of a broader context of measures aimed at fostering the sustainable use of outer space, and that they were intended to support and complement guidance available in existing treaties, principles, guidelines and recommendations.

49. Some delegations expressed the view that the United Nations was the only appropriate setting for the creation of guidelines on the long-term sustainability of outer space activities.

50. Some delegations expressed the view that the draft guidelines should take into consideration the needs of developing countries and encourage their participation in space activities, while at the same time not limiting their access to outer space.

51. Some delegations expressed the view that the guidelines for the long-term sustainability of outer space activities must include provisions to both define

sustainability itself, and to clearly prohibit the placement of weapons in outer space. These delegations also expressed the view that the long-term sustainability of outer space activities unequivocally depended on the non-militarization and non-placement of weapons in outer space.

52. The view was expressed that a guideline should be included that would encourage States to commit themselves, in their national legal frameworks, to conducting activities of an exclusively peaceful nature in the outer space environment.

53. Some delegations expressed the view that new guidelines should not create new costs or impose technical barriers for developing countries whose activities had made little or no contribution to the current space environment.

54. Some delegations expressed the view that the guidelines should be a living document to be modified in line with future technological developments.

55. Some delegations expressed support for the proposal put forward by the United States in its working paper A/AC.105/C.1/L.347 to establish an expert group to examine aspects of the long-term sustainability of outer space activities on which consensus had not yet been reached.

56. The view was expressed that space debris had been created through past space operations by countries with advanced space capabilities, and that those States should help new entrants in space activities to mitigate space debris by providing scientific, technological and financial support, in the interest of the long-term sustainability of outer space activities.

57. The view was expressed that the voluntary draft guidelines developed through "soft law" processes under the auspices of the United Nations should be consistent with international law, including the five United Nations treaties on outer space.

58. The view was expressed that the guidelines should include practical measures and realistic guidance regarding the use of existing technology to address actual and urgent problems faced when conducting activities in outer space.

59. The view was expressed that legal issues on the long-term sustainability of outer space activities should be discussed in the Legal Subcommittee.

60. The view was expressed that it was difficult to reach consensus on the draft guidelines because of serious political reasons not related to technical considerations. That delegation also expressed the view that during the negotiations on establishing a draft set of guidelines for the long-term sustainability of outer space activities under the auspices of the United Nations, other interested States improperly joined together to advance an alternative international code of conduct for space activities in an effort to bypass the work of the Committee.

61. The view was expressed that the desire for States to work outside the auspices of the United Nations was motivated by their unwillingness to engage in negotiations on topics duly proposed by the Russian Federation relating to the legitimate use of force and the right of self-defence, enshrined in the Charter of the United Nations.

62. Some delegations emphasized that the following principles should govern outer space activities: freedom of access to space for peaceful uses; preservation of

security and integrity of satellites in orbit and, in general, of the long-term sustainability of outer space activities; and compliance with the provisions of the Charter of the United Nations, including the right of self-defence.

63. The view was expressed that the guidelines should not contain references to the legitimate use of force, or the threat of the use of force, in outer space activities or to the Charter of the United Nations, as such references were already implicit rights of all States, and that it would set a dangerous precedent for a requirement to enumerate all such rights.

64. The view was expressed that it would not be possible to ensure the long-term sustainability of outer space or to resolve conflict if multilateral attempts to regulate the safety of outer space activities were allowed to expire.

65. The Subcommittee noted that the General Assembly, in accordance with paragraph 6 of its resolution 69/38, convened a joint ad hoc meeting of the Disarmament and International Security Committee (First Committee) and the Special Political and Decolonization Committee (Fourth Committee) on 22 October 2015 to address possible challenges to space security and sustainability.

66. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group on the Long-term Sustainability of Outer Space Activities, which is contained in annex III to the present report.